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IS 9454 (1980): Specification for Bicable Load Carriers [MED 6: Continuous Bulk Conveying, Elevating, Hoisting Aerial Ropeways and Related Equipment]

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UDC 625·578·4 : 625·576·4

IS : 9454 - 1980

(Reaffirmed 2002)

Indian Standard

SPECIFICATION FOR BICABLE LOAD CARRIERS

Conveyors, Vertical Hoists and Bucket Elevators Sectional Committee, EDC 61; Aerial Ropeways Subcommittee, EDC 61 : 5 [Ref: Doc: EDC 61 (3182)]

1. Scope — Covers the requirements for bicable load carriers used on bicable aerial ropeways. The carrier is suitable for bicable ropeways using low hauling power for transportation of loose bulk material and having clamping device for loading action and tipping body for unloading.

1.1 The standard does not cover load carriers of transportable and dumping type and for special type of ropeways.

2. Terminology — The terms and definitions as laid down in IS : 7649-1975 'Glossary of terms used in connection with aerial ropeways' shall apply.

3. Dimensions — The dimensions of bicable load carriers shall be as specified in Table 1.

4. Material — Manganese steel or mild steel with liners of steel or wood or equivalent. Various Indian Standards on welding codes shall be followed during the manufacture. Fasteners shall be either galvanized or plated.

5. Designation — A bicable load carrier having bucket of load carrying capacity of 1·0 tonne and holding capacity of 0·5 m^3 shall be designated as :

Bicable load carrier 1·0 × 0·5 IS : 9454

6. General Requirements

6.1 The buckets shall be of either right hand or left hand type. For right hand type, the hanger is on the right of the cable when moving along with the bucket. In the left hand type the hanger is on the left. The right hand type is considered the basic type.

6.2 Under the most unfavourable friction conditions there shall be a minimum safety factor of 1·5 against slippage between hauling rope and carrier clamping device at maximum slope of the ropeway.

6.3 The tipping of the bucket shall be automatic when the carriage goes over the unloading stretch.

6.4 The design of the bucket shall provide for the possibility of tipping inside the track or outside.

6.5 The design of the lock of the bucket shall provide for its automatic action when the bucket is restored after tipping and shall not allow its spontaneous opening.

6.6 The design of the bucket shall also allow its encirclement by horizontal pulleys and roller sets.

6.7 The design of the carriage shall ensure dependable greasing of all rubbing parts and free access to all grease points.

6.8 The wheels of the carriage shall have rolling bearings conforming to relevant Indian Standard. After fitting the bearing the gaps or their bodies shall be filled with suitable chemical compound.

6.9 All unmachined external surfaces of parts and assemblies of the bucket shall receive a ground coating and be painted. The type of the ground coating and colour shall be as required by user.

6.10 The wheels, release rollers and guide rollers shall rotate freely when turned by hand without jamming and without local increase of resistance to rotation.

6.11 The design of the load carriers shall meet the following requirements:

a) Longitudinal and transverse swings shall not exceed 20° and 7° respectively under most unfavourable conditions.

b) Transverse loading ratio specified in Indian Standard ' Code of practice for the construction of aerial ropeways for transportation of material ' (*under print*).

Adopted 30 January 1980

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INDIAN STANDARDS INSTITUTION
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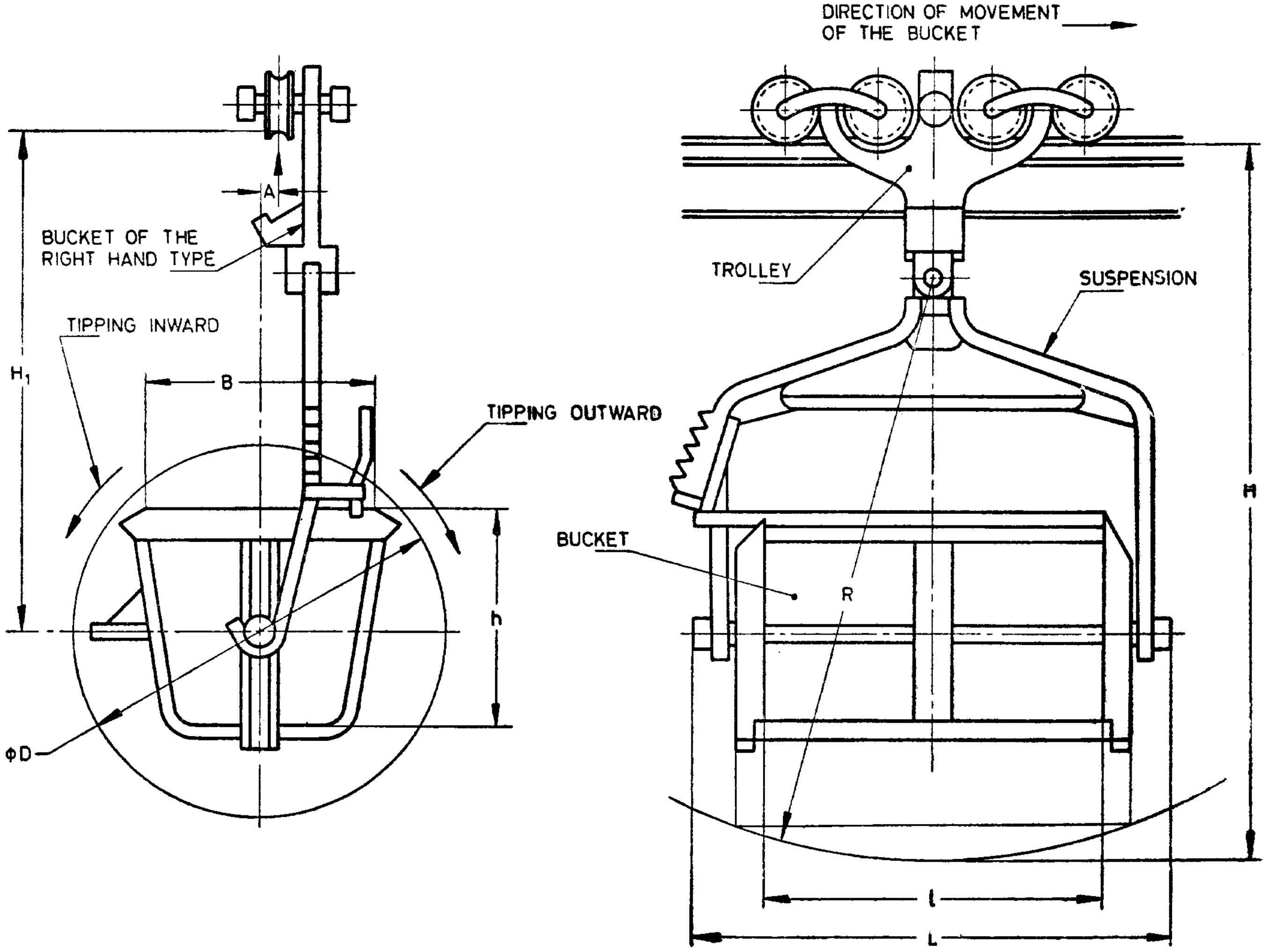
TABLE 1 DIMENSIONS OF BICABLE LOAD CARRIERS

(*Clause* 3)



Note — The figure does not represent any specified design but is given only to show the specified dimensions.

Load Carrying Capacity of Bucket t	Holding Capacity m^3	Number of Wheels of Carriage*	Maximum Allowed Diameter in mm of			Minimum Radius of Turning of Rail Track on Ground Plan, mm	Dimensions, *Max*, mm										Mass at Empty Bucket, *Max*, kg
			Rope		Straight Couplings* (Junction Boxes)		*H*	*L*	*R*	H_1	*D*	A for Tipping Bucket		*B*	*h*	*l*	
			Haulage*	Track*								Inside	Outside				
1·0	0·5	2	27	51	110	2 000	2 630	1 500	2 080	1 940	1 140	20	70	800	590	1 250	400
	0·65						2 700		2 150		1 290			900	700		430
	0·8						2 860	1 650	2 310	2 050	1 340			920	760	1 400	460
	1·0						2 930		2 380		1 500			1 045	830		490
2·0	0·5		30·5	51	110	2 500	2 660	1 500	2 080	1 970	1 140			800	590	1 250	530
	0·65						2 730		2 150		1 290			900	700		550
	0·8						2 890	1 650	2 310	2 080	1 340			920	760	1 400	580
	1·0						2 990		2 380		1 500			1 045	830		610
	1·25	4					3 140	1 750	2 560	2 200	1 610			1 130	895	1 500	650
3·2	1·0		32·5	65	150	3 000	2 900	1 650	2 380	2 290	1 500			1 045	830	1 400	850
	1·25						3 350	1 750	2 560	2 410	1 610			1 130	895	1 500	900
	1·6						3 650	1 940	2 870	2 615	1 725			1 200	930	1 650	950
	2·0						3 800	2 000	3 010	2 700	1 840			1 320	1 010	1 800	1 000

Note 1 — The load bearing capacity of the carriage of bucket is the summation of mass of the material and bucket with suspension.

Note 2 — Parameters with '*' mark may be altered according to design requirements.

7. Marking — The bicable load carrier and bucket shall be clearly stamped with the following information:

- a) Manufacturer's name and/or trade-mark,
- b) Serial number,
- c) Load carrying capacity,
- d) Holding capacity, and
- e) Year of manufacture.

7.1 *ISI Certification Marking* — Details available with the Indian Standards Institution.

8. Tests — The assembled bucket shall be tested to ensure verticality, balancing, swing, tipping, locking, damping and recoil arrangement if provided.

9. Packing — The bicable load carriers shall be supplied in disassembled state, that is, the hanger and the bucket proper shall not be supplied in assembled condition. The carriages shall be transported in crates. Caps shall be fixed to the hanger. The lock of the bucket and shafts of hanger shall be removed and packed in boxes.

EXPLANATORY NOTE

While preparing this standard assistance has been derived from GOST 10353-63 'Freight buckets for aerial ropeway' issued by Gosudarstvennyj Komitet Standartov, Mer i Izmeritel'nyh Priborov SSSR.

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